Livestock Digest

SPRING, 1965

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THE VICTORIAN DEPARTMENT OF AGRICULTURE

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MELBOURNE VETERINARY SCHOOL

On June 12, 1958, a committee appointed by the Victorian Government met in the Department of Agriculture to review the veterinary requirements of Victoria.

The committee was chaired by Mr. P. Ryan, then Director of Agriculture, and primary producer organisations in this State, the University of Melbourne, and the Veterinary Association were represented. This committee, after careful examination of the veterinary services in Victoria at that time, and of the future development requirements of this State, came to the conclusion that the veterinary school in Victoria should be immediately re-established on a permanent basis.

The members of the committee presented their report to the Premier on Tuesday, April 21, 1959. The result is seen in the opening of Stage 1 of the new veterinary school featured on the front cover.

There are at present 142 undergraduates undergoing the veterinary course, the first of whom will graduate in December, 1967.

The effect of the veterinary school will not only be to produce new graduates, but there will be a significant contribution to post-graduate training and to research into animal diseases.

There is great potential in this State for increase in the live stock industries, and there is a great need for trained people with proper facilities to service these industries, and to deal with the problems which must inevitably arise.

LIVESTOCK DIGEST

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COVER: The Minister of Agriculture, Mr. Chandler (left) and Professor D. C. Blood (right) accompany the Premier, Mr. Bolte, on a tour of inspection of the new Veterinary School on the day of the official opening last May (see editorial inside front cover) —Picture by staff photographer Russ Steele.

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THAT MOULDY HAY IT CAN BE USED

by A. TEW, D.D.A., Field Officer, Pastoral Research Station, Hamilton

Farmers are frequently worried about the effect of feeding mouldy hay to stock. This year a farmer travelled 130 miles to the Pastoral Research Station, Hamilton, with half a dozen bales to seek an opinion on the advisability of using it.

Although this hay was quite badly moulded, it was no worse than hay which has often been used as a sole ration for both adult sheep and cattle.

Because the high protein and digestibility of early hay results in much better growth than does mid-season or late hay, it is very desirable as a supplement for young animals, but making it often entails starting mowing when an initial spell of fine weather is followed by bad haymaking conditions.

Not enough is known of the effects of weather on hay, and the damage is frequently overestimated. The extremely wet conditions last spring permitted some interesting observations to be made at the Pastoral Research Station.

Hay which was ready to rake and bale on November 13, was rained on, and while in the swathe and windrow received 260 points of rain over nine days. This was baled after it dried out and contains 19 per cent. protein. It is free of mould and being readily eaten with good results by weaner sheep.

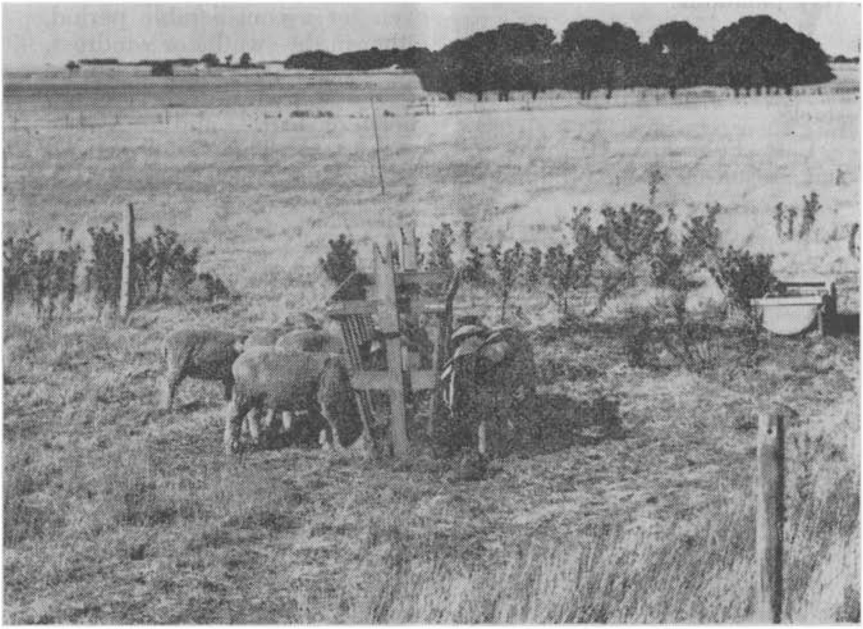
Other experiences at this station also suggest that it is a mistake to bale moist hay to avoid the risk of rain. The chances of damage from rain seem less than the certain damage from mould if unfit hay is baled.

In border-line cases the risk of mould can be reduced by making lighter bales; these are less susceptible to subsequent mould growth. However, despite care and good management, mouldy hay cannot always be entirely avoided.

While hay quality does deteriorate because of mould, it is true that even hay which is badly moulded will be eaten by stock. Although there is a possible risk of poisoning, this risk does seem to be very slight.

In feeding experiments conducted at the Pastoral Research Station, such hay, when fed as a sole ration over an extended period, has given better results than those obtained from late hay mown a month later, which was not mouldy.

Cattle in feed lots at the Pastoral Research Station, Hamilton, have done best on early, and mid-season cut hay compared with late cut hay.



Weaner sheep feeding on early cut (early November) hay at the Pastoral Research Station, Hamilton. This type of hay often contains a lot of mould but the young sheep do best on it.

A Western District property, which, for over fifteen years has conducted a haymaking program involving non-stop mowing starting in late October or very early November, has, as a consequence, had some mouldy hay in most years. This has always been eaten by both sheep and cattle as a sole ration without any noticeable ill effects. In fact they always appear to do well on it.

Extreme cases of mouldy hay have given some very surprising results. On forty acres, the bales — almost black — were put into small stacks of 50 or 60 and left in the paddock awaiting a convenient time to collect and dump them. It turned out to be very palatable.

Sheep put into the paddock to graze the still green aftermath ate 100 per cent. of all the stacks.

Last February, 70 bales of hay, resulting from preliminary tests at the Pastoral Research Station on baling improperly cured hay, were considered to be from 50 per cent. to 80 per cent. waste on the basis of visual observation. These were left in a paddock which had plenty of dry feed, unspoiled by rain.

There was so much feed in the paddock and the hay so bad that sheep were expected to completely ignore it. However, an inspection about four weeks later showed that 90 per cent. had been eaten. In both of these extreme cases there were no noticeable ill effects on the sheep.

These experiences suggest that it is worthwhile baling hay which has been rain affected, even for a considerable period, either in the swathe or windrow. If mouldy hay is made it can be offered to mature stock, either sheep or cattle, and to young stock too. They will eat it readily and do well on it. §

VICTORIA'S "GRAND NATIONAL SHOW"

The title "Grand National Show", which is granted to a different agricultural show in Victoria each year by the Minister of Agriculture, does add prestige to these local events.

Agricultural societies have to apply to be considered for the title. Although, due to changed conditions, not nearly so many applications are now received, in past years there has been considerable competition for the privilege of using the title.

This pleasant custom dates back a good many years and the earliest records of the grant are to the Geelong Agricultural and Pastoral Society in 1893 and to the Sale and District Agricultural Society in 1902.

The title for 1965 is held by the Charlton Agricultural and Pastoral Society and for 1966 is has been granted to the Sale and District Agricultural Society.

The title "Grand National Show" has no connection with the "Royal Show" held in Melbourne annually by the Royal Agricultural Society of Victoria.

"HEADS OR TAILS"
Epididymitis in Rams

by B. H. RUSHFORD, B.V.Sc., Veterinary Officer

Anyone who has played "two-up" must often have wished they could foretell whether the pennies would fall as "heads or tails." Dealing with rams, it also may be important to distinguish between epididymitis of the head or tail of the epididymus (see diagram on the next page).

The disease ovine brucellosis usually causes inflammatory changes such as swelling and hardening, of the tail of the organ, whereas the head is the part most affected by other types of epididymitis.

In recent years, epididymitis has been recognised as a serious condition in rams, often leading to lowered fertility and responsible for compulsory culling of many valuable animals. Mostly the disease ovine brucellosis is responsible, but it is important to realise that this is not always the case, and rams can be affected with a non-brucellar epididymitis.

Besides seeing what part of the epididymus is affected, other steps can be taken to determine if the condition is brucellar or non brucellar in origin. These are the laboratory exam-

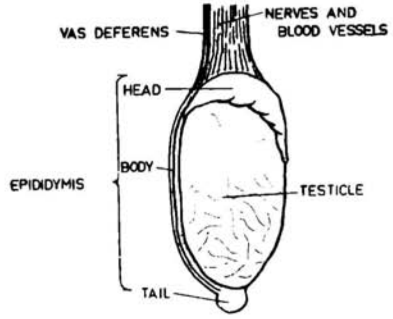


DIAGRAM: TESTICLE OF RAM

Inflammation and swelling due to the germ Brucella ovis may be found in the tail, body or head of the epididymis, although in the majority of cases the tail only is affected.

ination of blood and semen samples from the affected rams.

Where examination along these lines discloses that ovine brucellosis is present, measures either to control or eradicate the disease can be put into operation.

Ovine brucellosis is an infectious disease, and spread among rams can occur by homosexual practices, or by clean rams serving a ewe which has previously been served by an infected ram.

In the past five years, the Veterinary Research Institute has tested over 100,000 blood samples for ovine brucellosis, and excellent control of the disease has now been established.

This control of ovine brucellosis is likely to bring into greater prominence other conditions causing epididymitis. Generally they are not regarded as being infectious, and mostly only a few animals in a flock are affected. However, from time to time, there has been a little evidence that there may be an infectious agent operating in these cases. As ovine brucellosis comes to be eradicated from more and more flocks, the opportunity will arise to examine more closely these other conditions so that their exact importance and cause may be made clearer.

Flock owners who notice any type of epididymitis in their rams should seek the advice of their veterinary practitioner or Department of Agriculture veterinary officer to assist in finding out the cause of the condition. §

RECORD NUMBERS OF LIVESTOCK IN VICTORIA

Preliminary figures released by the Government Statist show that there has been an increase of 2,015,000 sheep, 12,000 cattle and 59,000 pigs in Victoria for the year ending March 31, 1965.

The sheep and cattle figures are all-time records. The actual numbers were 30,428,000 sheep, 3,313,000 cattle and 381,000 pigs at the end of last March.

WESTERN DISTRICT DEVELOPS NEW GRAZING SYSTEM

by A. H. BISHOP, B. Agr. Sc., Manager, Pastoral Research Station, Hamilton

A new system of grazing management which involves feeding hay in a restricted area while the associated pasture is deferred from grazing during late summer and autumn, was shown at the recent field day at the Pastoral Research Station, Hamilton.

A series of experiments conducted over four years have compared two treatments receiving the same amount and quality of hay and the same area of pasture.

Research officer, T. D. Kentish, presented results of three experiments in which the deferred grazing system was superior, in terms of winter live weight and wool production, to a system in which the hay was fed in the paddock.

The basic concepts involved in these experiments — concentrating hay feeding to the autumn, concentrating stock so that hay is fed as a sole ration, and saving pasture in the autumn for improved winter growth — have been developed into a practical system in the Hamilton district during the past 10 to 15 years.

There can be little doubt that the idea of saving pasture in the autumn to encourage better winter growth was derived from New Zealand, where great importance is attached to management of pastures in the autumn. The idea of gaining this deferment of grazing by feeding hay is the special contribution of the Western District.

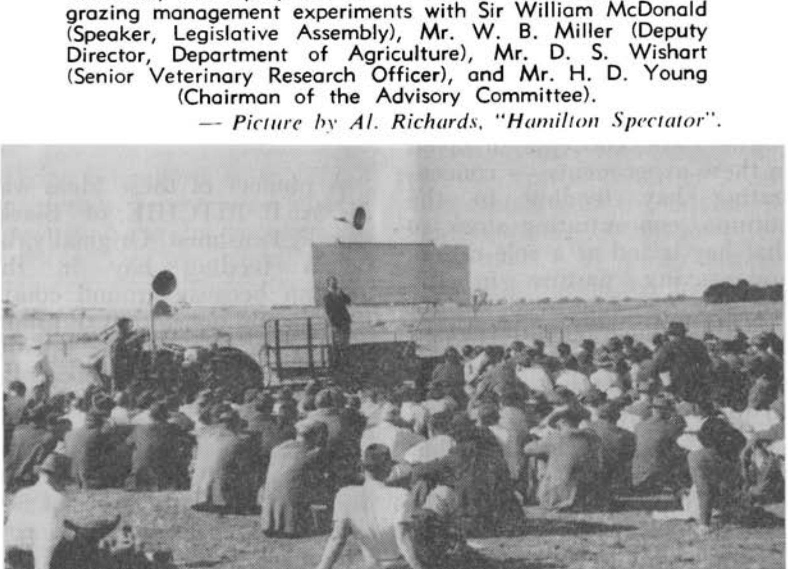
To be effective, it involves concentrating stock onto a small proportion of the farm and feeding hay as a sole ration so that a large area of pasture can make maximum growth ungrazed at the critical time, which is four to eight weeks after the autumn break.

A pioneer of these ideas was Mr. A. B. RITCHIE, of "Blackwood", Penshurst. Originally, he began feeding hay in the autumn because ground conditions would not permit transport of hay in the winter, but he soon realised that the policy also enabled him to save autumn pasture growth.

As long ago as 1954, he conducted trials with flocks of 800 ewes which were held in a corner of a paddock and fed hay for three months while the rest of the paddock was spelled. The ewes were then given the spelled pasture for the remainder of the winter and results were very satisfactory.

At the annual field day at the Pastoral Research Station, Hamilton, last April, Mr. A. H. Bishop (manager) discusses grazing management experiments with Sir William McDonald (Speaker, Legislative Assembly), Mr. W. B. Miller (Deputy Director, Department of Agriculture), Mr. D. S. Wishart (Senior Veterinary Research Officer), and Mr. H. D. Young (Chairman of the Advisory Committee).

— *Picture by Al. Richards, "Hamilton Spectator".*



Mr. D. Kentish, Livestock Research Officer, talks to visitors attending the field day, on the new management method being tried at the Station.

Subsequently, Mr. Ritchie adopted the system of leaving baled hay in the paddock and feeding it during the autumn to sheep and cattle by means of moveable electric fences, while other paddocks were saved for winter feeds.

This system has been further developed by Mr. R. B. RITCHIE, who is now in charge of "Blackwood", and sheep, breeding cows and weaned calves are now being fed on bales left in the paddock during the autumn.

In 1953, Mr. Ritchie was invited to address the Woodhouse-Nareeb sub-branch of the R.S.L. comprising a group of neighbouring soldier settlers, on the subject of priorities in property management. He spoke on the problem of feeding sheep in the winter and the importance of nutrition at this time.

By the late fifties, a group of these settlers had begun applying Mr. Ritchie's ideas of feeding hay in the autumn to give the pastures a chance to get away.

Using higher stock rates of 4 to 7 sheep to the acre, the system was applied more intensively, and up to three-quarters of the pasture area was spelled during the autumn while hay was being fed.

Mr. P. Hyland, then sheep and wool extension officer at Hamilton, had close contacts with this group and was carrying out observations on live weight changes in ewes and weaners during the summer and autumn.

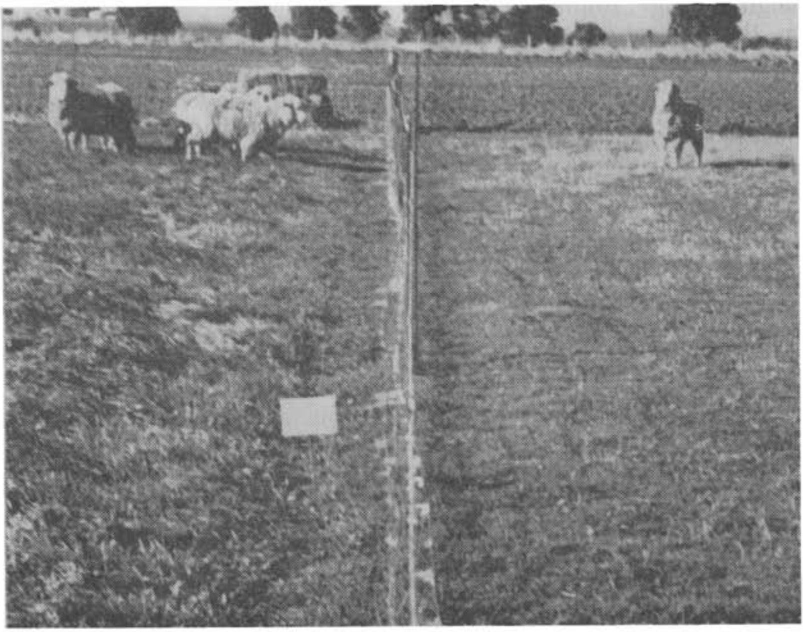
He observed that sheep frequently lost body weight more rapidly immediately following the autumn break, and began recommending the autumn spelling from pasture grazing by heavy feeding of hay and grain, to weaners and lambing ewes.

Another contribution was made by Mr. D. HOPKINS of Drumborg, who, in 1957, developed a system around the use of the Jay-hawk stacker to make small stacks of hay for self feeding. A 100-acre paddock, on which twelve 10-ton stacks were made, carried 900 ewes for six months from January. Mr. P. Hyland reported on this system to a Department of Agriculture Fodder Conservation Conference in 1959. Mr. J. Makeham, now a farm consultant at Colac, was very interested in this report and subsequently visited Drumborg.

Within recent years, the system has been developed to a high level of efficiency by Mr. GEORGE PREECE of Vite Vite. Using very high stocking rates, he has concentrated his ewes at 100 to the acre during feeding and in most years fed them to June before turning them out to saved pasture. Very satisfactory nutrition of ewes and good wool growth has resulted.

However, until recently, there were no experimental data on the results of the system. Since 1961, the Pastoral Research Station has experimented with

The "Hamilton" system of grazing management is being compared with rotational grazing and continuous grazing over a range of stocking rates in this large experiment recently established at the Station.



Research work on deferred autumn grazing management at the State Research Farm, Werribee. At five dry sheep to the acre, the left plot of winter pasture was deferred for eight weeks after the autumn break. The right plot was not deferred.

the feedlot and deferred autumn grazing. In 1963, the system was included in an experiment conducted at the S. S. Cameron Animal Research Laboratory by Mr. M. Sharkey.

With the annual pasture of Wimmera ryegrass and subterranean clover studied at Werribee, the result of the system was a dramatic increase in winter growth.

At Hamilton, on perennial ryegrass pastures, the increase has been smaller, but between systems receiving the same area of pasture and the same quantity of hay, differences of 5 to 10 lb. in winter body weight have been achieved. Corresponding differences of .5 to .8 lb. of greasy wool, in favor of the deferred group, have been recorded.

On a pasture making average growth, deferment of grazing for six weeks after the autumn break has resulted in sufficient winter growth to sustain 12 wethers to the acre in moderate but satisfactory condition without further supplementary feeding.

An adaptation of the system is being included in a major stocking rate experiment which began recently at the Pastoral Research Station. This experiment involves a series of stocking rates from 4 to 12, plus four levels of fodder conservation — nil, low, medium and high, plus three systems of grazing management, namely, continuous grazing, rotational grazing and hay feeding with autumn deferment. This experiment was also demonstrated at the field day.

As the grazing management system, involving hay feeding in late summer and autumn in association with deferred grazing of pastures has developed in the Hamilton district, it is becoming known as the "Hamilton" system of grazing management. The question to be answered next is — "How does it compare with rotational grazing as developed in the Southern Tableland of New South Wales?" §

Officers of the Victorian Department of Agriculture inspect ewes from the grazing management trials at "Wollogorang", near Goulburn, N.S.W.

STEAK AND ONIONS MAY BE A DANGEROUS COMBINATION

by W. E. WHITE, B.V.Sc., Veterinary Officer

Onions fed in large amounts to cattle can cause disease with signs appearing as early as six days after starting to feed the onions.

The signs of this disease are:

- *a reddish discoloration of the urine ("red water"),*
- *anaemia,*
- *increased heart rate and respiratory rate,*
- *jaundice which is a yellow discoloration of the body tissues due to a staining with pigments from ruptured red blood cells. This jaundice is most easily seen in the living animal in the mouth and the tissues around the eyes and under the eyelids which are normally white. In the dead animal, the yellow color is best seen in the fat except when the cows are Guernseys or Jerseys when the fat is yellow normally.*

Cattle cannot be driven in this condition as they quickly become "puffed out". Sudden deaths of affected cattle may occur.

POST MORTEM EXAMINATION REVEALS

- *jaundice,*
- *anaemia,*
- *red colored urine,*
- *patchy haemorrhages,*
- *"mushy" spleen,*
- *plenty of onions in the stomachs and gut.*

Older cattle tend to be more susceptible than younger ones.

The disease signs are caused by an alkaloid poison which is occasionally present in onions. This poison destroys many red blood cells.

Feeding of onions in large quantities does not always cause this trouble but the stock owner who feeds his cattle on large numbers of onions should always be ready in case these signs appear.

The best treatment when trouble starts is to stop feeding onions. Most cattle will show considerable improvement after about three days and will appear normal within about ten days after onion feeding is stopped.

Occasionally, tails may die, wither and fall off when animals are recovering from the disease.

Another effect of onions apart from the above disease is a tainting of the milk.

No losses in sheep have been observed. §

BOVINE BRUCELLOSIS

by A. J. TURNER, B.V.Sc., Veterinary Officer, Colac

Bovine brucellosis, or contagious abortion, is an insidious disease of cattle that can lead to abortion.

Abortion is the term used for cows that lose or "slip" their calves before the end of pregnancy. Abortion normally occurs at or about the seventh month of pregnancy. Stillborn or weak full term calves can be a result of Brucella infection.

THE CAUSE OF DISEASE

A very small microscopic germ or bacteria is the cause of disease. This germ invades the udder primarily and can spread to anywhere in the body from there. Once infected an animal can and will remain infected indefinitely.

CAN THE DISEASE BE PREVENTED?

Since 1943, Strain 19 vaccine has drastically reduced the problem of contagious abortion in herds where it is used. It is known to be an effective prevention of abortion for at least five calvings.

It is for this reason that an increasing number of overseas countries have begun a Brucellosis eradication scheme. Countries such as Norway, Sweden, Finland and Denmark have achieved eradication. The United States of America has estimated brucellosis to cost their cattle industry $87 million every year.

HOW DOES THE DISEASE SPREAD?

This occurs mainly at calving time; the germ is spread across the pasture. All calving materials, calf, afterbirth and fluids are infected and contaminate

the pasture. Other animals contract infection by eating this contaminated pasture.

It is only in very rare cases that the disease is spread by the bull to the cow at mating.

HOW DOES ABORTION OCCUR?

When the cow goes into calf, the germs invade the breeding organs including the calf itself, and the enclosing membranes. It is the invasion of the membranes that causes the calf to die, because it cannot obtain nutrients from the mother. Abortions mostly occur after the sixth month of pregnancy.

HOW CAN THE DISEASE BE DETECTED?

The infected cow normally shows no sign of sickness or ailment. Once a cow has aborted then she will normally go into calf and commonly calve a normal calf the following year.

The disease can only be detected accurately by blood testing. If the animal has encountered the disease this can be determined from a blood sample.

So in an eradication scheme, all cattle are blood tested and reactors are slaughtered. Because of its insidious nature the disease cannot be successfully treated.

WHAT CONSTITUTES THE CATTLE INDUSTRY LOSS?

This can be briefly summarised:

- *dead or weak calves,*
- *loss of milk production,*
- *permanent sterility.*

Strain 19 is a living Brucella vaccine developed in the U.S.A. in the late 1930's. Its use was pioneered in Australia by the Victorian Department of Agriculture which initiated vaccinating of heifer calves in 1943. The use of this vaccine has very greatly reduced the loss from contagious abortion in cattle.

An animal aborting a calf in the early seventh month can be down 80 per cent. of her possible milk production. A cow having had no abortion but is infected can be down 20 per cent. of her possible milk production.

After an abortion permanent sterility of the cow can result and this was a very important loss 20 years ago. §

PRODUCING MORE WOOL IN THE WESTERN DISTRICT

Young Corriedale wethers, set stocked for 12 months on semi-developed Western District pasture are producing up to 61 lb. of wool to the acre.

In a stocking rate demonstration established by officers of the Department of Agriculture on a private property seven miles north of Mortlake, matched groups of Corriedale wethers (now 2½ years old) have been set stocked at 2, 3, 4, 5 and 6 sheep to the acre since September 1963.

by I. R. THOMAS, B.Agr.Sc.,
Sheep and Wool Officer,
Warrnambool, and
J. M. CROOK, B.Agr.Sc., District
Agricultural Officer, Warrnambool

The sheep were shorn in October 1963 and again in October 1964. During this time, the sheep were maintained in a satisfactory condition at all rates of stocking without any supplementary feeding.

The trial was situated on a heavy grey-brown loam, flat to very slightly undulating and with some stone (basalt) on the surface. Some 10 to 20 per cent. of the area was flooded for considerable periods between July and mid-October 1964.

NOT SOWN DOWN

This area has not been sown down to improved pasture species, but one bag of superphosphate an acre spread from the air in each of the last four years has encouraged volunteer growth of subterranean clover and perennial ryegrass into a pasture of brome grasses, Yorkshire fog, white tussock, rushes and "native" trefoils.

SEASONAL CONDITIONS

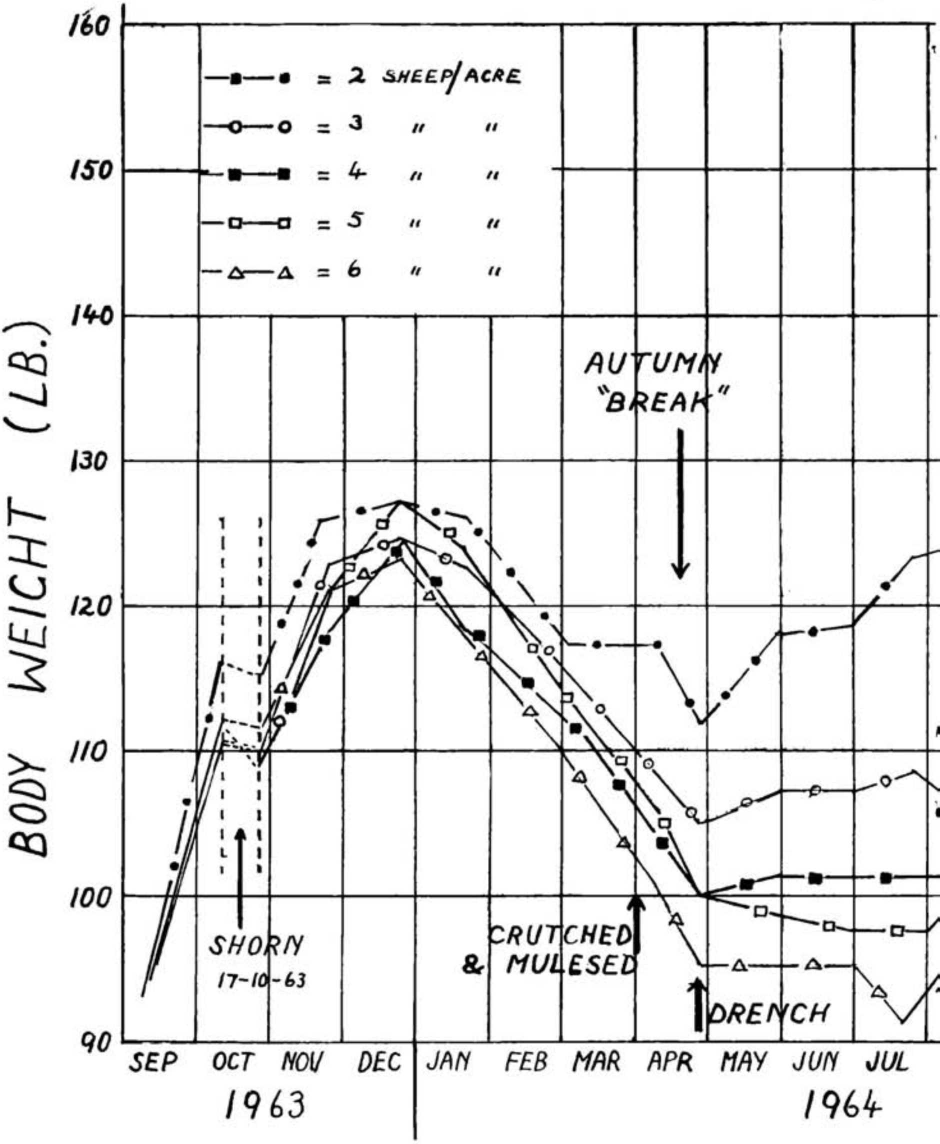
The 1963-64 season was an unusual one in the district. During the 12 months to September 1964, 30.41 inches of rain fell at Mortlake, some 18 per cent. above the average annual rainfall of 25.77 inches. This period began with an exceptionally dry spell from October to December, when only 2.31 inches fell (about some 65 per cent. below average) and was exceptionally wet with 13.30 inches (61 per cent. above average) falling during July, August and September.

The main autumn "break" came in mid-April, although some growth had persisted since a fall of 2⅛ inches of rain in early February.

PASTURE GROWTH

Monthly sheep weights were used to determine the carrying

Graph showing changes in avera
rate treatment groups in the sto
Mortlake, between Septem



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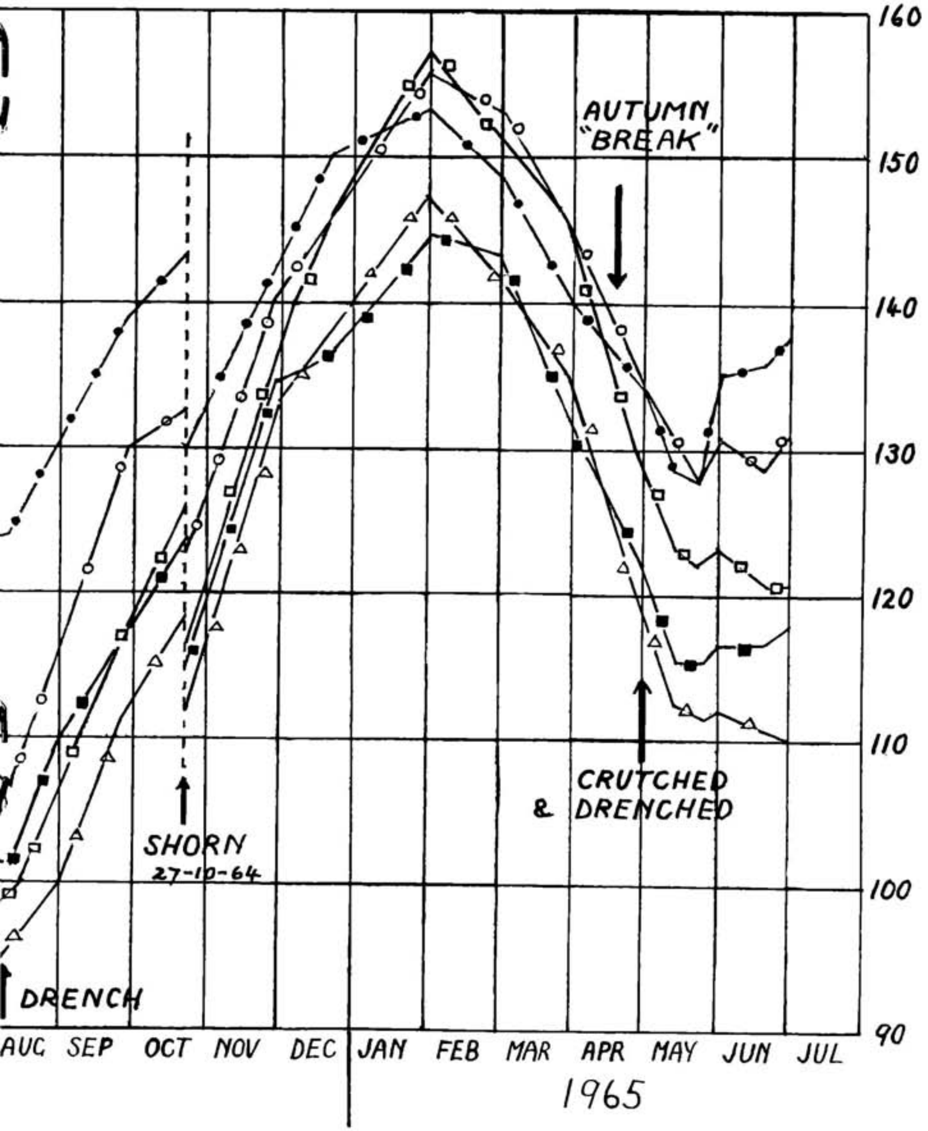


capacity of the pasture. No attempt was made to measure pasture growth under grazing but monthly visual observations have always shown less standing pasture in the more heavily stocked paddocks.

The lower stocking rates (at 2 and 3 sheep to the acre) have led to under-grazed, grass-dominant pasture, while the higher stocking rates (especially at 6 sheep to the acre) have led to slightly overgrazed, clover-dominant pastures and the apparent elimination of annual grasses and white tussock grass.

The heavy set of clover burr in spring 1963 did not appear to be actively sought after, even at the higher stocking rates.

SHEEP PERFORMANCE AND BODY WEIGHTS

From the body weight graph, it can be seen that a wide gap developed between the body weights of the lighter and heavier stocked groups during the autumn and winter.

This weight loss had no obvious effect on the general health and vigor of the sheep at the higher stocking rates, and during the spring these sheep rapidly gained weight, so that by the end of November they had almost overtaken the lighter stocked groups.

STOCKING RATE AND WOOL PRODUCTION

Increasing the stocking rate through the range from 2 to 6 sheep to the acre caused a reduction in wool cuts per head from 13.0 lb. to 10.1 lb., but gave an overall increase in wool per acre from 26 lb. to 61 lb. (see table). Each additional sheep lifted the total wool production by 8 to 10 lb.

The different stocking intensities had only a slight effect on wool quality. During the first full year of the trial, the fleeces in the 2 and 3 sheep to the acre groups strengthened slightly, while the more heavily stocked groups maintained their quality counts.

Up to 5 sheep to the acre, the higher stocking rates had no adverse effects on wool quality.

At 6 sheep to the acre, however, one fleece was slightly tender while another, from an injured sheep, was short and slightly cotted.

None of these effects had any great effect on wool prices, which were very similar for all groups (see table).

STOCKING RATE AND PROFITABILITY

The lift in greasy wool production from 26 lb. to the acre with 2 sheep to 61 lb. to the acre with 6 sheep gave a corresponding rise in gross returns from £6/4/- an acre to £14/9/- an acre. These returns, as set out in the table, are based on prices received in March 1965 for the station lines into which the individual fleeces were classed by a registered professional woolclasser.

MORTLAKE GRAZING MANAGEMENT TRIAL

COSTS AND RETURNS

Stocking Rate	Wool Produced per Head lb.	Wool Produced per Acre lb.	Average Price Pence per Pound	Gross Returns from Wool per Acre £	Fertiliser Cost per Acre £	Running Costs per Acre £	Net Return per Acre £
2	13.0	26	56.8	6.4	1	2.1	2.14
3	11.2	34	56.8	8.0	1	3.15	3.5
4	10.8	43	57.1	10.5	1	5.0	4.5
5	10.6	53	57.2	12.13	1	6.5	5.8
6	10.1	61	57.0	14.9	1	7.1	5.19

All bellies have been valued at their average price of 33 pence a pound.

The cost of running extra sheep has been assessed in the table at 25/- a head a year, made up from allowances for depreciation in sheep value (8/-), 5 per cent. interest on cost (4/6), 3 per cent. annual loss (2/6) and the cost of shearing, crutching, dipping, drenching and so on (10/-). The cost of superphosphate has been included at an aerial spreading contract rate of £12 a ton.

Based on these figures, the net return per acre rises from £2/14/- an acre with 2 sheep to £5/19/- an acre with 6 sheep.

An alternative method of costing this enterprise would be to use costs actually incurred by sheep owners in the surrounding district. No up-to-date figures are available for the Mortlake district, but a recent survey conducted in the Heywood district of Western Victoria is reported elsewhere in this Digest.

In the Heywood area it was shown that due to more efficient use of available resources the overall cost per head of running sheep fell as stocking rates were increased.

If due allowances are made for this increasing efficiency in the cost structure, the relative profitability of the higher stocking rates is improved further.

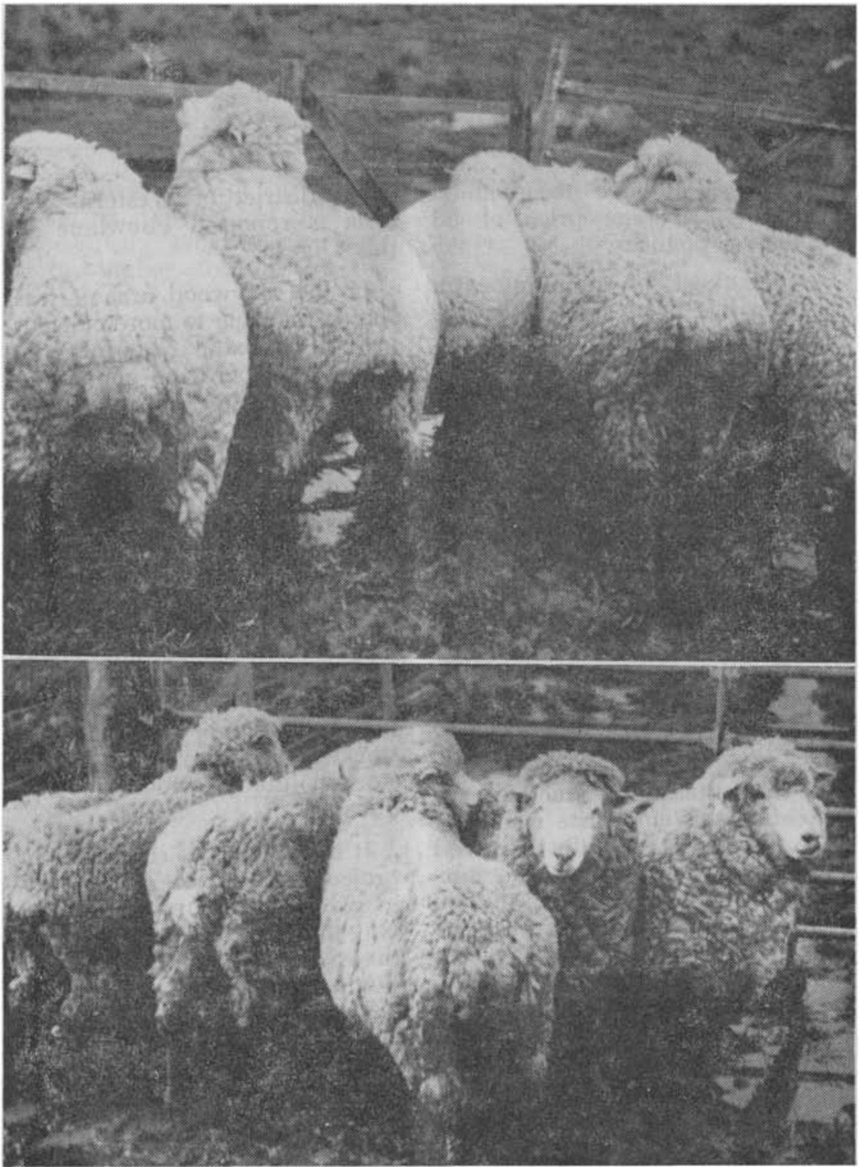
As mentioned previously, no supplementary feeding was needed during this first year. If supplements became necessary, the profit margin of the heavier stocked groups over the lighter stocked groups would be reduced.

It is intended to continue this project for several more years, to give a clearer picture of the long term productive capacity of these pastures under varying seasonal conditions.

These preliminary results, however, suggest that extensive areas of this part of the Western District could profitably produce more wool per acre than they do at present.

The assistance given in this project by the property owner and his staff is greatly appreciated. §

In the picture immediately below can be seen sheep stocked at two to the acre in August 1964, and at the bottom, sheep stocked at five to the acre in August 1964.



A headache in the foot

by J. R. SALISBURY, B.V.Sc., Veterinary Officer, Hamilton

The title is obviously in jest, but "scabby mouth on the legs" can be serious in a flock of sheep.

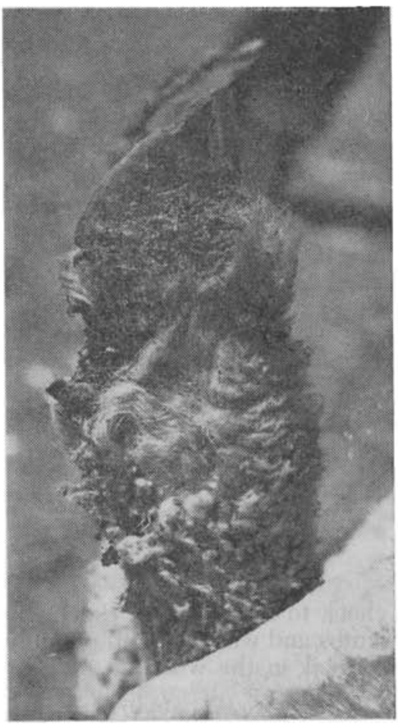
Scabby mouth is a disease caused by a virus which is very resistant to weather conditions which would kill less durable viruses, and can persist on dry dust, or on pasture.

It enters the skin by contact, and especially if there is skin injury present, it causes a reddening, which becomes ulcerated and raw a day or so later, and begins to form scabs. In any one sheep, it runs its course in a couple of weeks, but it may be present in the flock for many weeks.

When there are plenty of thistles or grass seeds about, the mouth and gums are the usual places where scabs are seen.

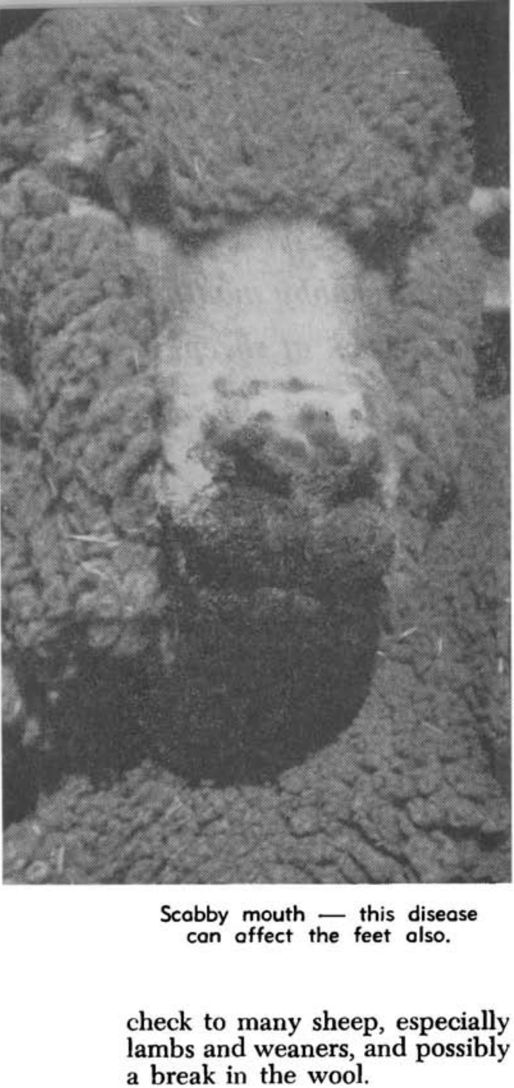
Last spring, however, outbreaks occurred through the west Wimmera and the feet were the main site of infection. These sheep were grazing on lush clover, and in damp conditions.

Thick scabs piled up behind and sometimes around the front of the foot above the claws. The lesion extended above the accessory claws behind the leg. The skin between the claws was less commonly affected, and there is no underrunning of the horn.



Foot affected by scabby mouth disease.

When bacterial infection got into the raw area, large amounts of evil smelling pus built up and in the occasional sheep the infection became generalised and they died. Lameness was often severe enough to cause a severe



Scabby mouth — this disease can affect the feet also.

check to many sheep, especially lambs and weaners, and possibly a break in the wool.

Footbathing in formalin will reduce secondary infection and hasten recovery — but remember to clean out the bath before clean sheep go through it!

Affected sheep should be isolated from the mob to reduce pasture contamination.

To further reduce the chances of spread, the clean sheep may be vaccinated. The vaccine is very cheap, and is administered by scratching the skin. The scratches will undergo all the processes that would otherwise occur on the mouth or feet. New cases will still occur up to a fortnight after vaccination, but thereafter immunity becomes solid and is lifelong. There is no point in vaccinating sheep already affected with the disease.

Make sure of the diagnosis before using vaccine because it contains live virus, and could introduce the disease onto a previously clean property. Goats are also susceptible, and the virus can cause a very painful skin infection in humans. Shearers will not shear affected sheep. As a preventative measure, lambs may be effectively vaccinated at marking. §

WASTED SILAGE

If it is not built between reasonably air-tight walls, wastage can occur in an above-ground silage stack. Silage can be lost to a depth of six inches if a clamp is not sealed.

Either side of a 60 ft. long clamp, 6 ft. deep, can then be made up of 180 cu.ft. of wasted grass, or a total of 360 cu.ft.

SEMEN CAN SPREAD DISEASE

by M. B. WHITE, B.V.Sc., Veterinary Officer

One of the best potential ways to spread disease is by artificial breeding using semen carrying an infectious disease. As artificial breeding is widely used only on cattle in Australia the problem so far is restricted to this species.

Some of the diseases which may be spread in the bull's semen are T.B., brucellosis, leptospirosis, and venereal diseases such as vibroisis and trichomoniasis. These diseases are present in Victoria and may be spread either by mating or by artificial breeding.

Overseas diseases such as foot and mouth or blue tongue, can also be spread through the semen and could be introduced into Victoria by infected semen.

In commercial artificial breeding, one bull in one year may produce enough semen for 20,000 inseminations. Therefore an infected bull can very effectively spread disease by means of A.B.

In addition, cows which are exposed to infection through A.B. are more likely to develop disease than cows exposed to infection through natural service. This is because the semen is deposited further inside the cow when she is artificially bred.

The Stock (Artificial Breeding) Act passed by the Victorian Parliament in 1962 is chiefly designed to ensure that all bulls used for commercial A.B. in Victoria are free from diseases which may be carried by the semen.

Under the Act, all A.B. centres in Victoria producing semen for sale must be licensed and no bull can enter the licensed property unless he is first tested by the Department of Agriculture at the S. S. Cameron Animal Laboratory, Werribee.

The bull remains at Werribee for at least three months. During this time he is tested for T.B., brucellosis, leptospirosis, pleuropneumonia, vibriosis and trichomoniasis.

When the bull passes these tests he is officially approved and is then permitted to enter the commercial A.B. centre. Subsequent retesting must be carried out by the A.B. centre at regular intervals to make certain that the bull remains free from disease.

Semen from the other States of Australia is allowed to enter Victoria only after the Department of Agriculture has checked that the bull has undergone a series of tests similar to those carried out on Victorian bulls.

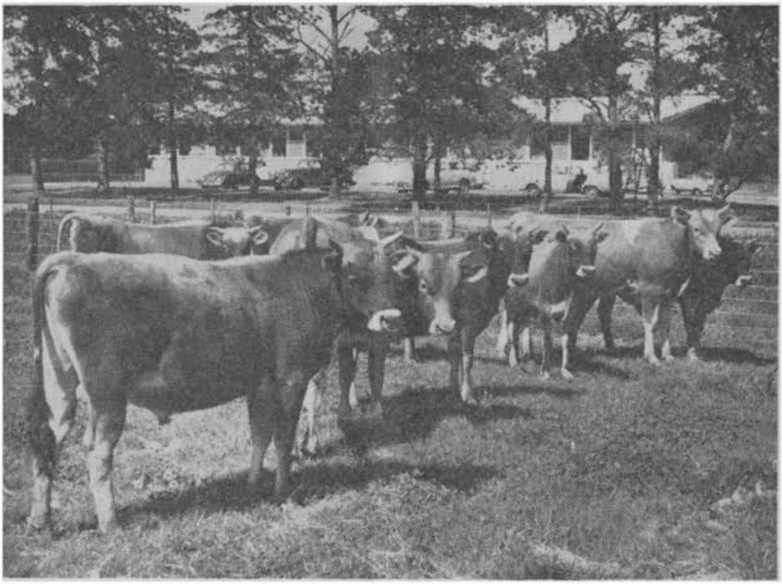
Semen from overseas is allowed into Australia from only two countries, New Zealand and the United Kingdom, and then only under very stringent conditions.

The chief risk with imported semen is blue tongue disease which is a major threat to our sheep industry. Cattle may carry the virus responsible for blue tongue and not show any symptoms. This virus could be shed in the bull's semen and deep freezing will preserve the virus just as effectively as it preserves the semen.

When the infected semen is used on a cow the virus may multiply without producing ill effects. The virus may then be transmitted by biting insects to sheep which will succumb to the disease.

The risk of spreading disease by infected semen should be appreciated. Adequate tests are available to ensure that bulls used for commercial A.B. are free from disease, it is essential that these tests be carried out. §

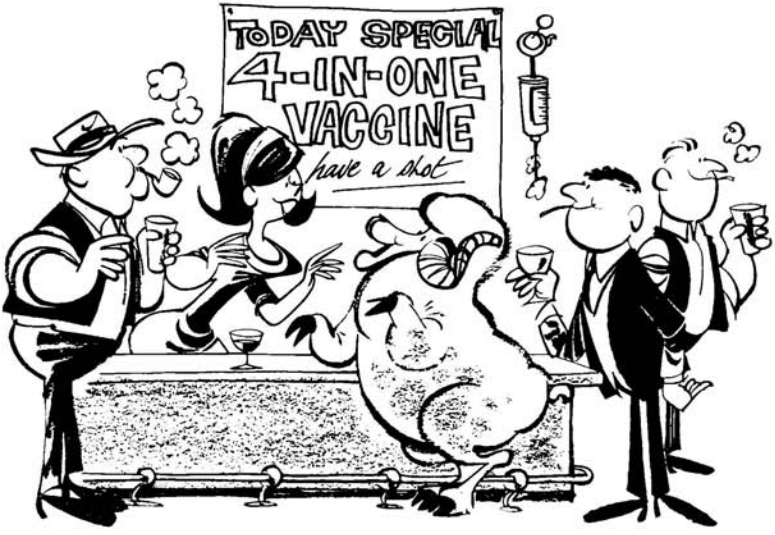
YOUNG BULLS FOR A.B. AT WERRIBEE



CONSERVE MORE FODDER

Victoria was lucky enough to escape the disastrous drought which had such bad effects in Queensland and New South Wales, and Victorian farmers were able to supply large amounts of fodder to the farmers of those States. The present season will give many Victorian farmers an opportunity of replenishing their stocks and making sure that if a drought did strike Victoria, they would be in a position to withstand it without heavy losses.

CONSERVE MORE FODDER



MAKE MINE A FOUR-IN-ONE

by B. H. RUSHFORD, B.V.Sc., Veterinary Officer

Combined vaccines, designed to protect animals with one dose of vaccine against more than one disease, are now available.

No doubt, if sheep or cattle had any say in the matter, they would be strongly in favor of this development — after all, one injection is less painful than three or four.

There are advantages also in this type of vaccine from the owner's point of view — less handling of animals, less labor involved.

In human medicine, this principle of multiple vaccines combined in one dose has been used for some time, notably in the protection of children against whooping cough, diphtheria and tetanus. It has been highly successful, but there are some features of diseases of animals that should cause farmers to be cautious in deciding to use the combined vaccines.

The diseases of animals for which combined vaccines are available in various combinations are pulpy kidney, tetanus, black disease, black leg, and swelled head in rams.

Points about these diseases to which farmers should pay special attention when choosing a vaccine are:

VACCINATE FOR PROTECTION

The chances of a particular disease occurring in a flock or herd. For example, tetanus in lambs is a relatively uncommon disease in Victoria; when it does occur, it is usually associated with the use of rubber rings for marking. Again black disease in sheep, the occurrence of which is associated with the presence of liver fluke, is unknown on many Victorian properties. Vaccination against swelled head of rams could only be reasonably recommended where large numbers of young rams are run together.

The time of the year when losses can be expected. In Australia, black disease in sheep is seen mainly during the summer, and the best time to vaccinate against the disease is 2 to 3 weeks before the danger period. This time will not necessarily coincide with the best time to vaccinate against other diseases.

The age of animals being protected. Although pulpy kidney may affect sheep of all ages, most of the vaccination against its occurrence in Victorian flocks is carried out in lambs, and in this age group black disease is very rare.

The species of animal being protected. Blackleg, while common in young cattle in many parts of Victoria, is much less common in sheep; the position with pulpy kidney is exactly the reverse.

Although black disease has been diagnosed at times in most species of domestic animals, major outbreaks have occurred only in sheep.

Clearly, a decision on the advisability of using a combined vaccine, is not necessarily an easy one. Farmers in doubt on this point should seek veterinary advice from their local Department of Agriculture centre, or private veterinary surgeon. §

A CLOSE LOOK AT THE SHEEP INDUSTRY IN THE HEYWOOD DISTRICT

by M. V. FREW, B. Agr. Sc., Sheep and Wool Officer, Hamilton

Agricultural research and extension workers recognise the value of well conducted farm surveys as a means of examining the production and economic structure of primary industries.

The sheep industry in the Western District of Victoria has achieved high levels of pasture improvement, and production figures for wool and meat per acre are among the highest in Australia.

But this does not mean that there is a uniformly high level of productivity on all properties.

The need for more detailed information along these lines prompted sheep and wool officers at Hamilton to conduct a survey in the Heywood area of the Shire of Portland. This was carried out in 1964, on figures for the 1962-63 season.

TWENTY PROPERTIES SURVEYED

Twenty sheep properties were chosen at random from those within a radius of 12 miles of Heathmere. The study attempted to examine standards of production as well as the financial performance of the area to reveal problems facing the industry, and to assess their economic importance.

The definition of district problems in this way is necessary in the formulation of meaningful research and extension work.

Accurate local information on the structure of costs and returns is essential for realistic economic application of the results of experiments on sheep husbandry and management being conducted on the Pastoral Research Station, Hamilton.

Important differences were revealed between the sample properties in the Heywood-Heathmere area, and those included in another survey conducted in the Hamilton area about 40 to 50 miles to the north.

The breeds represented in the Heywood study were more than 90 per cent. Corriedales and crossbreds.

Breeding ewes comprised about 53 per cent. of the flocks, and with an average lambing percentage of 86.5 in the 1962-63 season, about 1.2 lambs to the acre were marked.

Late winter (July-August) was the preferred time of lambing in the Heathmere area, compared with late autumn to early winter in the Hamilton sample properties.

The survey properties had an average annual rainfall of about 30 to 33 inches. They varied in size and the types of enterprise ranged from wool growing to prime lamb production, with or without an associated beef cattle enterprise. Pastures in general were well improved with a long history of superphosphate application.

In addition to the sheep industry, there is a well established dairy industry in the area which was not covered by this study.

The survey revealed a picture of an old, well established, progressive industry, producing large quantities of wool and meat per acre in a favored environment, using sound techniques of pasture and flock management.

BIG DIFFERENCES BETWEEN PROPERTIES IN NET FARM INCOME

On a per acre basis, average returns, costs and net farm incomes rate among the highest in Western Victoria for sheep properties. Nevertheless, there were wide differences in net farm incomes per acre between farms.

Examination of the data has so far failed to show any obvious relationships between net farm income per acre and factors such as breeds of sheep, the use of conserved fodder or fodder crops, the beef cattle enterprise and soil types.

Stocking rate was outstanding as the management factor most closely associated with production, gross returns and net farm income per acre.

The figures shown in the table are derived from properties which range widely in area, cattle to sheep ratio, breeds of sheep, flock composition and in other ways.

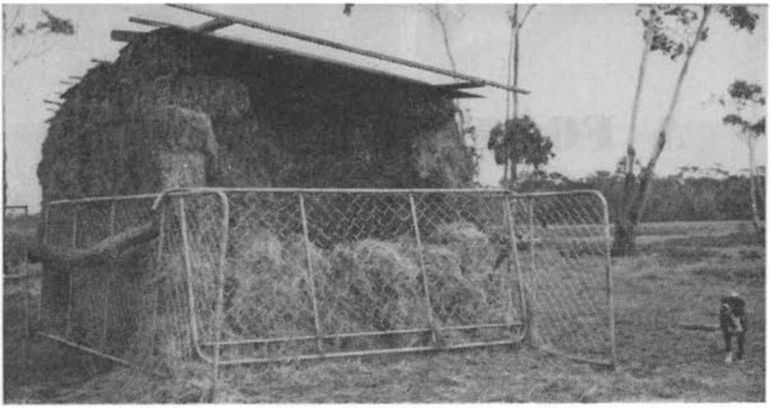
So that stocking rates can be compared, all stocking rates are expressed as breeding ewes per acre in this table, using arbitrary values, including

1 breeding cow = 10 breeding ewes.

1 breeding ewe = 1⅓ wethers.

SUMMARY OF FINANCIAL RESULTS, SEASON 1962/63, OF 20 FARMS IN THE HEYWOOD DISTRICT

Stocking Rate (ewes/ac.)	**2**	**3**	**4**
Gross returns per acre (£)	7 10 0	11 0 0	14 2 0
Total costs per acre (excluding operator's allowance) (£)	5 10 0	6 4 0	6 16 0
Net farm income per acre (£)	2 0 0	4 16 0	7 6 0
Total costs per breeding ewe equivalent (excluding operator's allowance) (£)	2 15 0	2 1 4	1 14 0



A method of self-feeding baled hay to sheep running at high stocking rates in the Heywood district.

Four of the 20 properties carried the equivalent of 4 breeding ewes to the acre or more, 10 carried from 3 to 4 ewe equivalents to the acre, and six less than 3 ewe equivalents to the acre.

The small increases in costs, the large gains in returns, and the spectacular increases in net farm income per acre with increasing stocking rates overshadow all other relationships.

The survey showed little, if any, reductions in wool production or lambing performance with increasing stocking rates, but it did show a marked reduction in total costs per head at the higher stocking rates.

Subject to possible restrictions of pasture productivity, labor, capital, management and other resources, it is likely that increases in the number of animals carried on the properties studied would result in increased profits, and lower unit costs of production.

Victoria's high rainfall areas have considerable scope for further improvement, and this, coupled with better utilisation by increased stock numbers, provides a powerful weapon for the fight against falling prices and rising costs.

If you are interested in adopting this approach to increasing productivity and profits on your farm, talk the idea over with your district sheep and wool officer. §

Corriedale weaners on a fodder crop at the Pastoral Research Station, Hamilton.

A FOOT CONDITION IN DAIRY CATTLE

by D. S. McQUEEN, B.V.Sc., Verterinary Officer, Warragul

It is said that an army marches on its stomach. To reverse the implication, we could say that a cow at pasture eats through her feet. She must be mobile in order to produce efficiently, and she soon deteriorates if her feet are sore.

Footrot is the best known problem in this connection, but other troubles certainly exist.

Sometimes an owner finds lame cattle in which the usual features of footrot are lacking. It is usually the hind legs which are involved, and the lameness is more marked when the animal walks on concrete or hard ground.

Superficially at least, the foot appears normal, and there is no swelling above the claw, which is so characteristic of footrot.

The cow is capable of lifting the affected leg quite smartly however, thereby demonstrating that a foot trouble and not an upper leg lameness is present. No response to footrot treatment occurs.

Some years ago, cases were seen on a dairy farm in the Piedmont area — near Neerim Junction. It soon became evident that a superficial inspection of the feet was missing the important point. There was an obvious defect on the outer claw. Towards the toe, at the junction between the sole and the wall, one found a detachment between the two structures. Furthermore, the sole was readily depressed on pushing it with the thumb.

The nature of the damage inside the claw could not be determined for certain, except in the case of one animal which had to be slaughtered on account of further complications. Here the bone within the claw — or the third phalanx as it is called — was clearly involved.

An infection, the nature of which was not clearly defined, had given rise to the condition known as osteomyelitis.

Other cattle recovered after a few weeks, with clear evidence of a natural repair at the sole wall junction of the affected claw. Factors contributing to the problem were not established on this farm, but certain clues emerged on enquiries into similar trouble more recently.

One owner, for instance, paved a long laneway with a very jagged type of road metal, and he failed to apply the correct material to bind the surface. This

Separating the sole of the hoof.

action was followed by footrot in the herd, and also by cases similar to those just described.

Something different again, however, appeared to contribute to trouble on other farms. In every instance, the sole of the foot was extremely flat, and the wall receded sharply from its junction with the sole. When these cases were compared with other cattle in the herd, the latter were seen to exhibit at least a little concavity of the bottom of the foot, on the inner claw more than the outer.

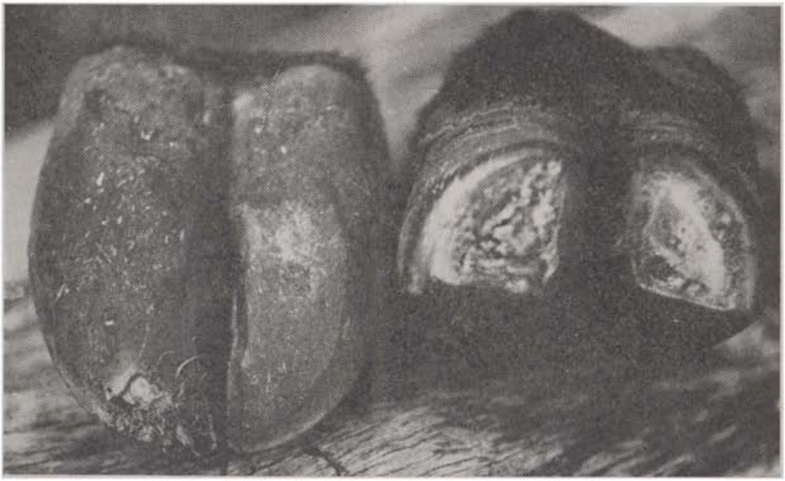
Contrary to what was observed on the Piedmont farm however, it was frequently the inner claw which was affected.

What is the reason for the development of such smooth, flat soles in these cases? Examination of normal cattle at the Ellinbank Dairy Research Station suggested that young calves presented the most concave soles. Those of calves with access to concrete, however, were less concave.

Similarly, the soles of heifers and dry cattle were more concave than those of the milkers.

It would seem that walking on concrete added considerably to the wearing of the claw, and some feet were better equipped to stand this than others. In extreme cases, the edge of the wall receeded so much that the sole was unprotected and more readily susceptible to injury.

To deal with such a problem in a herd, first eliminate obvious hazards like loose metal and badly broken concrete surfaces. Beyond that however, one can do little except to look after the



Sole of the hoof badly worn near the toe.

affected animals while they are partially crippled.

Just what part a hitherto unrecognised infection — or even a dietary deficiency might play — is still undetermined. Since the way in which a cow's foot is made so to speak is another likely factor in the situation, then heredity probably plays a part. All of these points should provide an interesting and profitable field of investigation in the future. §

DIXIE CRIMSON CLOVER COULD BE A USEFUL SHORT TERM PASTURE PLANT

The performance of Dixie crimson clover as a pioneer pasture plant on poor unimproved country near Maldon during the past two or three years suggests that reconsideration of the worth of crimson clover is necessary.

The chief virtue of crimson clover is its ability to make rapid autumn growth to provide a bulk of good feed in the year it is sown. This incidentally leads to a rapid build up of organic matter in the soil.

Crimson clover does not reappear like many other annual clovers because the seed germinates as soon as the soil becomes moist. As a result most of the seedlings die during the summer.

However the Dixie strain from the U.S.A. is said to have a higher proportion of hard seed than earlier importations of crimson clover. This gives it a better chance to regenerate.

Crimson clover can be confused with red clover. The different stipules (the leaf like appendages where the leaf stalk joins the stem) distinguishes them though — in crimson clover they are blunt, in red clover they are pointed.

Crimson clover is adapted to acid soils but does not do well in alkaline soils. It tolerates a wide range of soil texture but will not stand up to poorly drained conditions.

Crimson clover is not an alternative to sub-clover.

—*G. B. RAYNER, B.Agr.Sc., District Agricultural Officer, Ballarat.*

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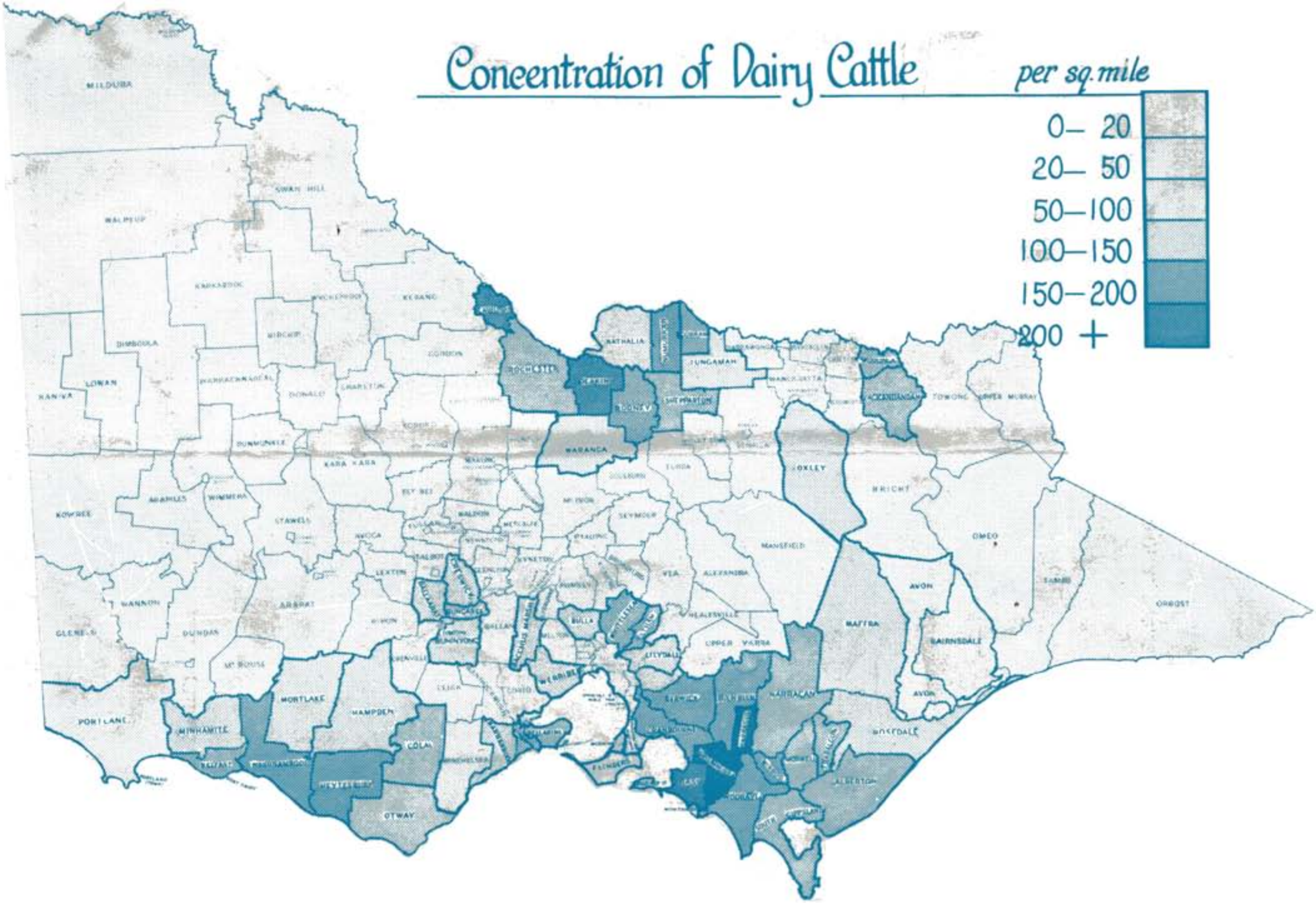

Concentration of Dairy Cattle

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